

Appendix B

East Grasshopper Watershed Monitoring Plan

Monitoring Plan for East Grasshopper Watershed

Introduction

The purpose of this resource monitoring plan is to measure the effectiveness of management changes, structural projects and vegetative treatments in meeting the goals and objectives developed for the East Grasshopper Watershed (EGW). This plan has been designed to measure progress towards site specific objectives developed by an ID team where resource concerns were identified during the EGW Assessment.

This plan will identify when, where and how studies will be conducted, as well as the types of data that will be collected, how the data will be evaluated, and who will participate in the process. All monitoring methodologies are approved BLM monitoring methodologies and are described in various BLM or Interagency Handbooks. All this information, including technical references, BLM policy and procedure handbooks, and monitoring guidelines and methodology descriptions are available for review at the Dillon Field Office.

All *existing* monitoring studies that are needed to measure progress towards objectives or Standards will continue to be read on the same time schedule as any identified new studies.

Site Specific Objectives Four Key Issues and six additional Resource Concerns were identified during the EGW Assessment and through public scoping and were analyzed in the EGW EA. Site specific objectives have been developed based on each key issue and resource concern. The amount of change desired for each of the objectives will be determined once additional baseline data is gathered during the 2012 or 2013 field seasons. The goal is to make measurable progress towards site specific objectives by 2021.

Key Issue # 1: Riparian, Wetland, and Aquatic Health and Associated Species Objectives:

- Increase composition and cover of deep-rooted riparian species along stream channels and spring/wetland areas (reduce bare ground)
- Increase vigor and regeneration of willows
- Maintain/enhance existing aspen and promote successful regeneration of aspen
- Improve the ability of streams to develop stable channel dimensions, (width/depth), patterns (sinuosity), and profiles (slope) within natural ranges of variability.
- Stop head cuts and restore vertical channel stability
- Reduce sediment inputs into streams generated by human activities
- Maintain/enhance habitat for cold water fisheries in occupied streams within the watershed

Monitoring activities to measure progress towards meeting Riparian, Wetland and Aquatic Habitat objectives:

- Continue monitoring existing riparian studies to measure progress towards objectives.

- Springs that are developed/redeveloped will be photographed before and after development and inspected and photographed periodically after development (every 2-3 years), including prior to the next scheduled assessment.
- Spring developments will be checked at least semi-annually during compliance inspections to verify that maintenance is being completed as agreed to in Cooperative Agreements.
- Dysfunctional spring developments that are removed/cleaned up will be photographed before and after project clean-up.

Table B-1. Site specific Riparian and Wetland and Aquatic Health Monitoring

Allotment Name and #	Stream and Stream Reach	Objective	Monitoring Methodology
Baldy Mountain #30037	Dyce Creek # 16	Reduce sediment input to stream Increase deciduous woody riparian species	Ocular observation Pebble Counts Coverboard
	W. Fork Dyce Crk # 18 W. Fork Dyce Crk #1591 WF Dyce Crk trib. #1575	Reduce sediment input to stream Improve channel morphology Increase riparian vegetation along the greenline	Ocular observation Pebble Counts Cumulative width/depth transect; Greenline transect and/or photo-point
	E. Fork Dyce Creek #1572 E. Fork Dyce Creek #1571	Reduce sediment input to stream Improve channel morphology Increase riparian vegetation along the greenline	Ocular observation Pebble Counts Cumulative width/depth transect; Greenline transect and/or photo-point
Buffalo Creek #30617	Buffalo Cr. Wetland #1570	Eliminate by-products of feeding from wetland	Photo-points Compliance
Frenchie #10121	Cold Spring Creek #1551	Keep stream in natural stream channel Improve channel morphology	Photo-points Compliance
Reservoir Creek #30030	Reservoir Creek #1594	Improve channel morphology Reduce sediment input to stream	Photo-point
Stonehouse #30005	Ermont Gulch trib #1559	Increase riparian vegetation along the greenline	Photo-point
	Rattlesnake Creek #1566	Improve channel morphology Increase willow regeneration	Photo-point
Taylor Buffalo #10122	Taylor Creek #1553	Improve channel morphology Increase riparian vegetation along the greenline	Cumulative width/depth transect Greenline transect

Key Issue #2: Upland Health, Sagebrush Steppe Habitat and Associated Species

Objectives:

- Maintain or increase composition and cover native perennial cool season bunchgrasses
- Restore/maintain open sagebrush communities in habitats that are currently becoming

- dominated by Rocky mountain juniper and/or Douglas-fir.
- Improve browse cover, composition and availability on mule deer winter range.

Monitoring activities to measure progress towards meeting upland habitat and associated species objectives:

- Continue monitoring existing upland studies to measure progress towards objectives.

Table B-2. Site Specific Upland Health Objectives

Allotment Name	Objective	Monitoring Methodologies
Taylor Buffalo Buffalo Creek Reservoir Crk Cust Reservoir Crk AMP	Increase composition , frequency and cover of cool-season perennial bunchgrasses	Daubenmire Quadrat (nested) Frequency and/or photo points
All remaining allotments in watershed	Maintain or increase composition and cover of cool-season perennial bunchgrasses	Daubenmire Quadrat (nested) Frequency and/or photo points
Baldy Mountain	Within identified treatment units, reduce 60% or more of conifers less than 30 feet tall that have recently expanded into previously open sagebrush-dominated communities	Daubenmire and/or photo points
	Increase available mahogany on mule deer winter range	Photo points, line intercept and /or belt transect
Stonehouse (incl. Badger Pass Gravel Pit); Taylor Creek, Frenchie	Reduce composition of noxious and invasive species	Daubenmire and/or photo points

Commercial Harvest:

- Pre- Implementation
 - Complete Forest Vegetation Information System (FORVIS) walkthrough survey to classify the existing vegetation type within a representative sample of each stand type. Walkthrough survey data includes canopy species composition and density, understory vegetation, fuel loading, and density and size class of snags and down wood.
 - Establish GPS photo points within a representative sample of stand types, and document general stand conditions with photos. Documentation will reflect the particular objectives of individual units.
 - Establish GPS photo point(s) showing approximate percent cover of species and any occurrence of insect/disease at the landscape-scale.
- Post Implementation:
 - Within two years after implementation on a given unit, re-visit each stand to obtain the same data measurements described above and evaluate if the stand objectives were reached.

- Ungulate browse monitoring of aspen regeneration may be implemented if excessive browsing appears to be restricting new aspen suckers from growing taller than browse height.

Limber Pine Treatments:

- For trees suspected of being blister rust resistant, GPS and tag tree. Measure DBH, height, and crown ratio.
- Following treatment, complete re-application of pheromones or insecticide. Inspect tree for evidence of blister rust.

Non-commercial Mechanical/Prescribed Fire Treatments:

- Gather fuels and vegetation transect data on up to five representative sites. Photographic documentation should include pre and post-treatment photos from a designated point to verify ocular estimates. If prescribed burns are conducted after May 15, complete migratory bird surveys prior to burning activities.
- During prescribed burn treatments, fire behavior, fire weather, and smoke dispersion will be observed and documented throughout the ignition portion of each burn to make sure that these elements are within the prescription defined in the burn plan.
- Directly after prescribed fire treatments, retake photographs at established points and/or retake measurements along each pre-treatment transect to determine if treatment objectives have been attained.
- One to four years after treatment: Re-measure transects and photo points to show vegetative response to the treatment and progress towards meeting objectives. Changes in use by big game, specifically elk, within the treatment areas will be measured by conducting pellet group transects prior to treatment and then, at least annually, for up to five years following treatment.
- Ungulate browse monitoring of aspen regeneration may be implemented if excessive browsing appears to be restricting new aspen suckers from growing taller than browse height.

Mahogany Treatments Monitoring:

Objectives:

- Increase available mahogany on mule deer winter range.

Planned monitoring will consist of photo points and either line intercept or belt transects to determine the recruitment rate of mahogany post-treatment.

Key Issue #3: Special Status Fish and Wildlife Species Habitat

Objectives:

- Maintain existing sagebrush habitat so that 70% or more of big sagebrush communities provide vegetative composition and structure for sagebrush obligate species.
- Maintain sage grouse nesting/early brood rearing canopy cover of 15-25% sagebrush

- Maintain an average of 6 to 7 inches herbaceous understory within site potential within sage grouse nesting/early brood rearing habitat.
- Maintain or increase composition of highly nutritious forbs (e.g. composites and legumes) in sage grouse nesting/early brood rearing habitat.
- Prevent nonnative trout invasion into Dyce Creek
- Improve fish habitat by reducing sediment input into Dyce Creek
- Maintain 6 inches of sedge and/or herbaceous vegetation along stream banks along the greenline (within site potential).

Monitoring Activities to measure progress towards meeting Fish, Wildlife and Special Status Species Habitat objectives:

Table B-3. Site Specific Objectives for Sagebrush Obligate Species Habitat and WCT Habitat

Allotment Name	Objective	Monitoring Methodologies
Bannack, Buffalo Creek, Cross, Reservoir Creek, Stonehouse, Taylor-Buffalo	<p>Maintain 15 – 25% sagebrush cover in nesting/early brood rearing habitat.</p> <p>Maintain an average of 6-7 inch residual understory within site potential on the majority of the area.</p> <p>Maintain or increase composition of composites and legumes in nesting/early brood rearing habitat</p>	<p>Line Intercept and Daubenmire plots to measure canopy cover of sagebrush, and herbaceous and forb understory.</p> <p>Forage utilization and herbaceous understory cover will be measured annually within time constraints of staff.</p>
Baldy Mountain	<ul style="list-style-type: none"> •Prevent new nonnative trout invasion into Dyce Creek •Improve fish habitat by reducing sediment input into Dyce Creek •Maintain 6 inches of sedge and/or herbaceous vegetation along stream banks along the greenline (within site potential). 	<p>Conduct nonnative surveys in conjunction with WCT population monitoring</p> <p>Cumulative width/ depth transect; w/Pebble count</p> <p>Greenline transects Annual stubble height monitoring</p>

Related objectives and monitoring activities to measure progress towards special status fish and wildlife habitat are included above under Key Issues for Riparian, Wetland, and Aquatic Health and Upland Health.

Additional monitoring activities specific to special status fish and wildlife habitat include:

- Continue monitoring pygmy rabbit habitat to determine occupied habitat and refine habitat maps.
- Coordinate with Local sage grouse working group and volunteers to continue monitoring population trends of sage grouse by conducting lek counts each spring.

- Coordinate with MTFWP and USFS biologists to continue monitoring population trends of WCT in Dyce Creek.

Key Issue #4: Noxious and Invasive Species

Objectives:

- Reduce the composition of noxious and invasive vegetative species within the watershed.
- Mitigate the spread of noxious and invasive plants into, within, or from the watershed and specifically mitigate the spread of noxious weed seeds from the Badger Pass Gravel Pit.

Monitoring activities to measure progress towards meeting noxious and invasive species objectives are included in above under Riparian, Wetland, and Aquatic Health and Upland Health.

Aerial weed treatment areas will be monitored or evaluated for site specific objectives through photo points, ocular observation, and/or vegetative transects. Site specific objectives for aerial treatment will be to reduce composition of spotted knapweed with negligible reduction of non-target species.

Resource Concern #1: Wilderness Characteristics

Objectives:

- Maintain or improve the wilderness characteristics in the Henneberry Ridge WSA that were present at the time of the wilderness inventory (1979-80).
- Analyze the impacts of BLM actions in the Cold Spring Unit (LWC).

Planned monitoring will consist of compliance checks and continuation of existing monitoring. WSA monitoring forms will be completed, and photographic documentation will be used where applicable.

Resource Concern #2: Recreation and Travel Management

Objectives:

- Implement the Dillon RMP Travel Management Plan.
- Revise motorized route designations as necessary to correct mapping errors and improve route designations.
- Reduce unauthorized (non-designated route travel) motor vehicle use which occurs most frequently during the hunting season.
- Maintain motorized wheeled vehicle access to those areas where it already exists, and improve access to public lands where appropriate and where opportunities are currently limited.
- Reduce resource impacts caused by recreationists, including spread of noxious weeds.

Monitoring will consist of compliance checks to determine if closed roads show signs of use, as well as the enforcement of the travel management plan, specifically during the big game hunting season.

Resource Concern #3: Socioeconomics

Objectives:

- Continue to contribute to the local economy by providing an opportunity for sustainable uses on public land through livestock grazing, utilization of forest products, and recreational activities.
- Recover economic value of dead/dying timber before it is lost due to decay, where physically and economically feasible.
- Provide opportunities for personal and commercial use of wood products.

Trends in socioeconomics will not be monitored by the local BLM office.

Resource Concern #4: Cultural Resources

Objectives:

- Preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations.
- Reduce imminent threats from natural or human-caused deterioration, or potential conflict with other resource uses.
- Ensure that all authorizations for land and resource use avoid inadvertent damage to federal and nonfederal cultural resource in compliance with Section 106 of the National Historic Preservation Act.

Monitoring activities to measure progress towards meeting cultural resource objectives include: Visit a minimum of 10 previously recorded cultural resource properties that are listed on the National Register of Historic Places or determined eligible for listing, on an annual basis, to update the site form to current professional standards and to assess the current condition and trend of significant resource values.

Resource Concern #5: Visual Resources

Objectives:

- Partially retain the existing character of the area outside WSA. Management activities may attract attention but should not dominate the view of the casual observer.
- Preserve the existing character of the landscape. Keep any changes to characteristic landscape very low so as not to attract attention within the Henneberry Ridge WSA.

Monitoring activities to measure progress towards meeting visual resource objectives include: Reviewing proposed activities for consistency, and encouraging field staff to look around when they are in the area and report unauthorized activities that may be impacting visual resources.

Resource Concern #6: Special Status Plant Species Habitat

Objective:

- Maintain or enhance habitat for sensitive plant species and provide ample opportunity for reproduction and seedling establishment

Monitoring activities to measure progress towards meeting sensitive plant species habitat objectives include:

- Continue to monitor the Lemhi beardtongue population at Badger Pass.
- Document and establish baseline inventory for any new “unmapped” populations of sensitive plants that are found.
- The inventory should include the number of individual plants, a description of the habitat (e.g., associated species, soils, aspect and elevation) and an assessment of any existing and potential threats to the population.

Types of Data Collected

The established permanent vegetative and physical trend transects in the East Grasshopper Watershed were read and data was updated during 2010. However, in order to adequately measure progress towards site specific objectives, additional studies will be established in key areas during 2012 and baseline data will be gathered on the newly established studies. This baseline data will be considered the starting point from which to measure progress towards meeting objectives or effectiveness of management changes implemented beginning in 2010 (on the new studies only). Data from existing studies will be compared and evaluated from the time they were established and data was initially collected.

Key areas are defined as relatively small areas that reflect or have the capability to reflect the effectiveness of management of the resources of a larger area. Depending on management objectives, a key area may be a representative sample of a large stratum, pasture, allotment, or a particular management area. Key areas or monitoring sites should represent the high variability of riparian, upland and forest habitat types, patterns of use, and conditions of forest, rangeland or riparian health. Over the next several years the following data will be collected (See Table 3).

- Actual livestock and wildlife use. Actual use is the grazing use of an area by all classes of forage consumers. This information is necessary to provide a correlation between utilization and trend data. Considered alone, actual use data are essentially meaningless. However, when considered in conjunction with climate and utilization data, this data is necessary to interpret trend data accurately.
- Annual compliance, including utilization of upland forage, browse levels on willows and aspen, measurement of sedge stubble heights and/or measurement of stream bank alteration. This monitoring will occur primarily at established key areas, but may occur in other areas as well. Annual compliance monitoring will be done on a prioritized basis with I category allotments being the highest priority, followed by M, and then C category allotments. In areas where competition for resources may occur between livestock and big game, pre-livestock data may also be collected. This annual data will be used to help determine pasture moves, accurately interpret trend data, and serve as an early indicator

on whether implemented changes are effective. If annual monitoring reveals resource degradation or ineffective management changes (as determined by BLM specialists), trend studies may be read at any time prior to the next scheduled assessment (2021), and adjustments in management analyzed in the interim.

- Local precipitation and temperature. This data is necessary to interpret trend data accurately.
- Long term trend. Trend data will be used to measure progress towards meeting objectives as described above.

Trend refers to the direction of change and indicates whether the forest, rangeland, riparian area or other resource is being maintained or is moving toward or away from the desired plant community or other specific management objectives. Trend studies are important in the long term for determining the effectiveness of management actions in meeting or moving towards management objectives.

Trend data will be collected again in 2020 or 2021, unless specified otherwise for specific objectives. The East Grasshopper Watershed will be re-assessed or evaluated during 2021. In this process, all monitoring data will be summarized, analyzed, interpreted, and evaluated to measure progress toward meeting objectives. Trend data gathered in 2020 will be compared to baseline and existing trend data gathered or updated in 2010 or 2012. The measured change in the data will be used to measure progress toward meeting objectives, thereby evaluating management and making informed decisions regarding subsequent management (continuation or change). This is called adaptive management. For example, if monitoring data shows that progress is being made toward established objectives, current management will be continued or modified slightly as warranted, according to the data. However, if data shows a downward trend (change away from objectives) or does not show any progress toward meeting objectives by 2020, and it is determined that current livestock management is a significant factor in precluding progress toward meeting objectives, then management will be adjusted by implementing an alternate system, changing the season of use and/or reducing authorized AUMs. The level of adjustment will be determined by the degree of divergence from the objectives.

Monitoring methodology descriptions are available for review at the Dillon Field Office.

Table B-4. Planned Resource Monitoring Activities

Type	Method	Responsibility	Frequency
Actual Use	Actual Use Reports submitted by permittees Wildlife observations Wildlife population monitoring in cooperation with the MFWP Recreation user days	Range, Wildlife and Recreation Staff	Annually
Compliance/ Utilization	Utilization – Key Forage Plant Method, Grazed/Ungrazed Method, or Height/weight method	Range, Wildlife or Fisheries Biologists, Hydrologist	Annually on a prioritized basis
	Stubble height – Stubble Height Method		
	Bank alteration – Stream bank Alteration Methodology as defined by Idaho State Office BLM, 2000		
	Browse use – Extensive Browse Method		

Type	Method	Responsibility	Frequency
Climate	Precipitation data available from National Oceanic and Atmospheric Administration and other sources	Available from external sources	Annually
Habitat Characterization	Inventory for leks and seasonal habitats Sagebrush canopy and herbaceous understory measurements along established transects in sage grouse, elk calving and mule deer winter habitats	Wildlife Staff, MFWP, NWF	Annually on a prioritized basis
Trend (also see Table 3)	Biotic Quadrat Frequency Daubenmire Line Intercept Cover Board Woody Species Regeneration Greenline Macroplots/Belt Transects Photopoints Fire Regime Condition Class (FRCC) Satellite Imagery (as applicable) <hr/> Physical Cross section Rosgens Cumulative width/depth ratio	Range, Wildlife or Fisheries Biologists, Hydrologists, Foresters, Fuels Specialists	Any new trend monitoring studies will be established during 2012. Trend data (new and existing studies) will be gathered again in 2020 or 2021.
Watershed Evaluation	Analysis, Interpretation, Evaluation and Recommendations	ID team	FY2021

Budget Requirements

This monitoring plan was prepared with the assumption that funding will remain at or near existing levels for the foreseeable future. In this light, it is anticipated that the bulk of the monitoring load will have to be borne by the existing range, wildlife, fisheries, forestry, fuels, hydrology, recreation, wilderness and cultural resource specialists along with a minimum of six seasonal employees each field season for the duration of this plan.

Litigation workload associated with Watershed Assessments also directly effects how much monitoring the existing staff is able to complete.